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ABSTRACT

In order to test hypotheses derived from the concept that grammatical, syntactic, semantic, and contextual cues affect the degree of reading comprehension in a visual display, the present investigation was undertaken using the French language. The subjects were approximately 30 college students in a second-semester elementary French course. Five sentences were constructed for each of four sentence types (active declarative, active interrogative, negative, and negative interrogative); each of the five sentences in each group was given a different degree of visual clarity or blurring by making multiple carbon copies on a typewriter. The dependent variable was the point of clarity at which grammaticality and sentence meaning were clearly recognized. Subjects were given a short review of sentence types and were asked to indicate at what point of clarity they understood each sentence and its type. The results suggest that recognition of grammatical type and its underlying declarative and/or interrogative features provides a powerful cue in reading even when perceptual processing is obscured. The finding that declarative sentences require less time to evaluate than negative sentences has theoretical implications for future research. (MSE)

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PROCESSING SENTENCES IN FRENCH UNDER VISUAL CONSTRAINT

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Background

Much research has been concerned with developing reading skills in French, but little research has been generated by language educators relative to the linguistic and perceptual cues during the reading process. Kolers (1970) has already determined that efficient and skilled reading require the reader to ignore large quantities of linguistic detail; for if a serial, letter by letter scan of the written page is required, the maximum reading rate will be incredibly slow. Readers must deal with larger units of linguistic input.

Savin and Perchonock (1965) noted that the units in which a reader encodes and recalls a sentence are larger than individual words. Their idea was that the structure of the sentence or its underlying proposition and syntax determine the degree of retention of a sentence. Thus the relationship between active versus passive, negative versus positive sentences have import to the reader. Savin and Perchonock (1965) concluded also that various features of linguistic input are encoded in immediate memory apart from one another, and apart from the rest of the sentence. Their research revealed that negative and passive transformations require a greater capacity in immediate memory, and that a reader's knowledge of grammar aids in hearing and remembering sentences in English. Levin and Kaplan (1968) found that visual detection of rules or constraints of syntax may determine the degree of processing sentences for short and/or longer term memory, especially if the reader recognizes a predictable grammatical construction, such as: Subject + Verb + Object (SVO).

It has been determined which sentences are difficult to process. Wason (1959, 1961) and Eifermann (1961) found that their subjects take longer to process negative statements than affirmative constructions. Gough (1966), and Turner and Rommetveit (1968) found that passive sentences require more time to evaluate than active sentences. Yet another line of research demonstrates that syntactic form may be less important to reading comprehension than context (Blumenthal, 1967; Eifermann, 1961; Wason, 1961). Nouns related to the direct object, the plausibility of the statement, and right embedding may enhance comprehension and retention of affirmative, negative, and passive sentences (Sawyer, 1976; Slobin, 1966, 1982; Wason, 1961).

The research described above reveals that reading involves synctactic, contextual, and semantic cues in a visual display. Levin and Kaplan (1968), and Sawyer (1976) proposed that grammaticality, syntax, and an interpretation of the "deep structure" of a sentence can enhance unpredictable constructions. By manipulating the visual display of the reader, recognition and measurement of grammatically unpredictable sentences are possible. In order to test hypotheses derived from the concept that grammatical, syntactic, semantic, and contextual cues affect the degree of reading comprehension in a visual display, the present investigation was undertaken using the French language.

Method

Subjects and Procedures

Approximately 30 subjects in a second semester elementary French course were randomly selected for this investigation. The students agreed to participate in the study after being informed of its purpose by the investigator.

The grade point average distribution in the subjects appeared to be normal, and served as an index of student performance, and the subjects were divided into high achievers and low achievers based on a median split. Low achievers (N= 20) ranged from D to C, and high achievers (N= 10) ranged from B to A.

Four sentence-types were selected for this investigation; four sentence-types that represented the major categories in first-semester French. The sentence types were: (1) active declarative; (2) active interrogative; (3) negative; and (4) negative interrogative.

Twenty sentences (five of each type) were constructed. Each of the five sentences per type were given five degrees of clarity or blurring by making multiple carbon copies on a IBM Selectric II typewriter. The dependent variable was the point of clarity at which the grammaticality and the meaning of the sentence were correctly recognized.

Subjects were given a short review of the four sentence types to ensure comprehension during the investigation. One week later, subjects were scheduled individually for one session with no interventions. During each session, subjects were presented the sentences and were requested to indicate at which point they understood the sentence and its sentence type. To measure the intensity of the responses, the subjects were asked to indicate verbally to the investigator on a 5-point scale, from 1 indicating maximum clarity to 5 indicating maximum blurring. Thus, high scores indicated rapid recognition of grammaticality and comprehension, while low scores reflected slow recognition.

Statistical Analysis

The data of this investigation were analyzed by 2 X 4 (Achievement Level X Sentence Type) analysis of variance for proportional cells (SAS 82.3). The level of significance was set at .05, and Tukey-Kramer served as the post-hoc multiple comparison test.

Results

Two significant effects—achievement level, $F(1,22) = 5.79$, $p < .05$, and sentence type, $F(3,22) = 3.32$, $p < .05$ were obtained. No significant interactive effects were obtained. The post-hoc comparisons revealed that there were significant differences between high and low achievers. Means for high achievers were 4.1, 3.3, 2.6, and 1.8, respectively; whereas means for low achievers were 2.1, 1.4, 1.0, and 1.0 respectively. The post-hoc comparisons also revealed that there were significant differences between sentence types. Means for active declarative ($\bar{X} = 3.1$) and interrogative ($\bar{X} = 2.35$) sentences appeared to be more recognizable than negative ($\bar{X} = 1.8$) and negative interrogative ($\bar{X} = 1.04$) sentences.

Discussion

The purpose of the present study was to determine at which point perceptual processing can be interrupted and yet grammaticality and recognition of simple French sentences are maintained. In addition, the present study sought to add to past research into underlying propositions and syntactical complexity in French sentences.

The results suggest that recognition of grammatical type with its underlying declarative and/or interrogative features are powerful cues in reading even when perceptual processing is obscurred. The findings in this investigation that declarative sentences require less time to evaluate than negative sentences has theoretical implications for future researchers who may attempt to determine the amount of extra time and memory required to deal with the negative and interrogative aspects of French sentences. Further research focusing on the processing of Spanish sentences may offer an interesting contrast into the internal and external contributions of syntax, context, and grammatical cues used by learners of the major Romance languages taught in the United States.

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